INSTRUCTIONS
for
OPERATION AND MAINTENANCE
of the

SORENSEN
MOBILE SUCTION APPARATUS

MILD INTERMITTENT THERMAL DRAINAGE
NSN-6515-01-358-9480
115/230 V.A.C.,50/60 HZ.

A DIVISION OF

STIRN INDUSTRIES

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MODEL 2590-120G
REV.DATE 6/11/92

STIRN INDUSTRIES

OPERATING AND MAINTENANCE

INSTRUCTION

FOR

MODEL 2590-G-120 MILD INTERMITTENT

THERMAL DRAINAGE UNIT

115-230 VOLTS, 50/60 HZ

NSN-6515-01-358-9480

STIRN INDUSTRIES
1095 CRANBURY S. RIVER RD.
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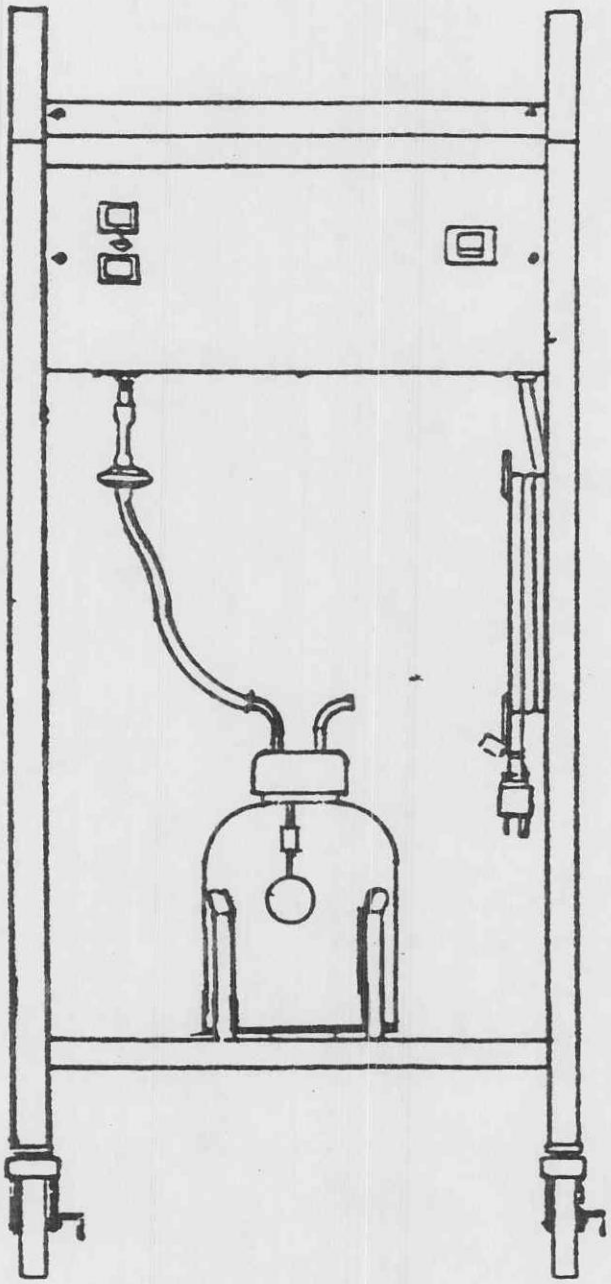
Pub. No. 4062007
Rev. Date 6/22/92
DepMeds-AT-05
AT-06



MOBILE ASPIRATOR
MODEL 2590-120

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SECTION 1. MODEL DESCRIPTION

1.1 INTRODUCTION

The **Model 2590-G-120** provides continuous mild suction for use in the **Wangensteen Technique,** abdominal decompression and drainage of the abdomen, bladder and other body cavities. There are two vacuum levels, either of which can be selected by means of a switch on the front panel.

a) **HIGH** - Approximately 120mm Hg. when occluded
b) **LOW** - Approximately 90mm Hg. when occluded

The **Model 2590-G-120** is designed for mobility, being equipped with 3 inch ball bearing casters, two of which can be locked by foot operated levers. The pump is a nonmechanical design based on the principle of thermal expansion and contraction of air within a closed chamber to create suction. A bacteriostatic filter is inserted between the 128 ounce collection bottle and pump. This stops the collected fluid from entering the pump should the overflow cutoff fail. See Section 3.1.1 for overflow safety cutoff operation.

This unit is supplied with the following items:

(2)	P/N 4062007	Operation and Maintenance Manual
(1)	P/N 2018886	Tubing-5 ft. lg. 1/4" ID
(3)	P/N 1008564	Filter, Bacteriostatic
(1)	P/N 3062055	Overflow Cutoff Valve Assembly

1.2 MODEL 2590-G-120 SPECIFICATIONS:

16" Wide by 14" Deep by 34" High
Net Weight: 21 Pounds
Voltage: 115/230 Volts
Watts: 115
Frequency: 50-60 Hz.

SECTION 2. ASSEMBLY

2.1 PREPARATION FOR USE:

a) Remove all packing materials.

b) Remove tape securing collection bottle to bottle holder.

c) Push the overflow cutoff assembly on to the port labeled **"PUMP"** on the cap assembly (see Figure 8, page 20).

d) Verify suction side (bottle to filter and filter to cabinet) connection.

e) Connect 5 foot length of plastic tubing, P/N 8000270, to **"PATIENT"** side of collection bottle cap. Check that cap is tightly installed in collection bottle.

SECTION 3. OPERATION

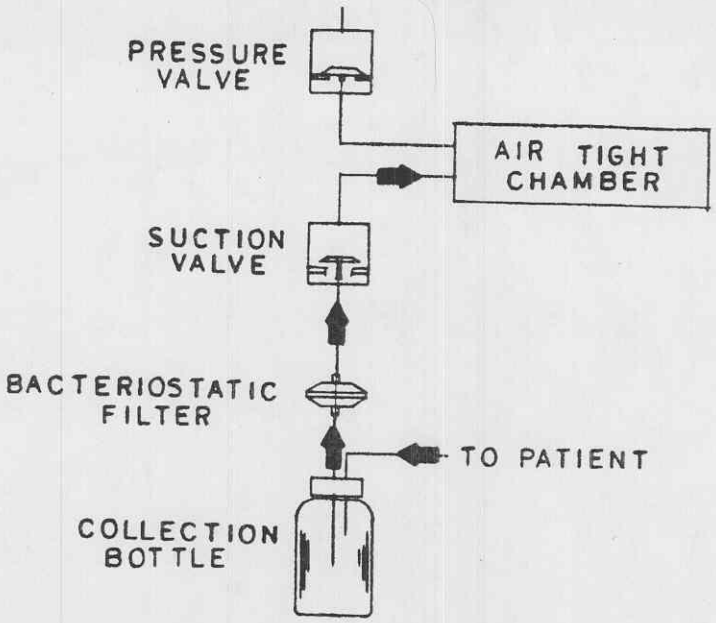
3.1 OPERATING PRINCIPLE

Suction is induced by the expansion and contraction of air within the airtight heat chamber, P/N 3100268. The process is controlled by a solid state timing device and check valves to regulate vent and suction cycles.

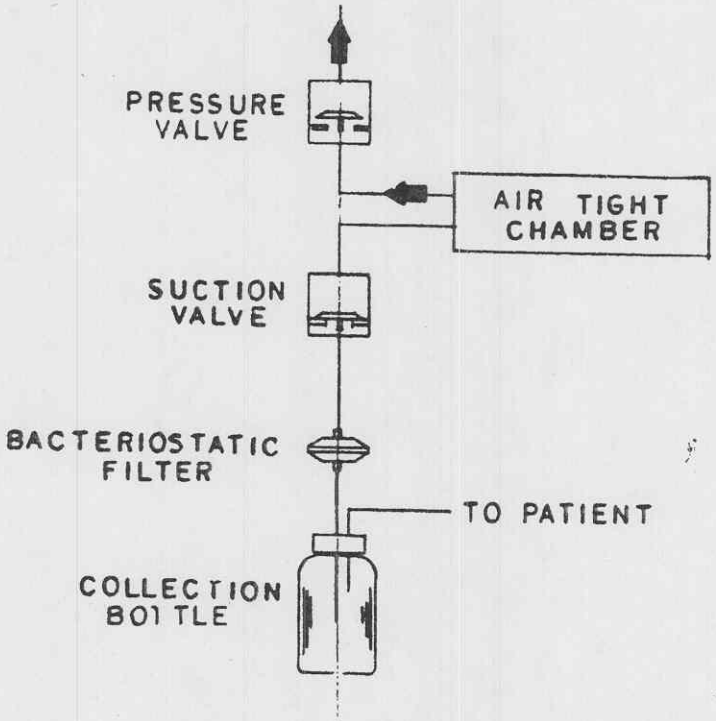
The heat chamber assembly is airtight and contains a wound nichrome wire heating element . When the heating element is energized the heated air within the chamber is exhausted through the vent check valve to the atmosphere.

The white panel light for the level of suction selected (90 MM or 120 MM) will be energized at this time. "ON" cycle time will be 6 seconds.

During the "OFF" cycle, the white indicator light is off and voltage is cut to the heating element by the solid state timer for a period of 17 seconds. The vent check valve will close as the remaining air within the chamber cools creating a mild suction which opens the suction check valve. Air will be drawn from the collection bottle to fill the chamber. This is when actual patient suction occurs (refer to diagram on page 3).



SUCTION CYCLE (LIGHT OFF)



HEATING CYCLE (LIGHT ON)

3.2 OPERATING INSTRUCTIONS:

a) Connect line cord to outlet with current and voltage listed on unit nameplate. For reliable grounding, connect only to a receptacle marked **HOSPITAL GRADE.**

b) Press **ON** lever on casters to prevent the unit from rolling.

c) Connect drainage tube (catheter, duodenal tube, etc.) to long inlet tube in gallon bottle cap.

d) Push power switch to **ON.** Switch will glow and stay depressed until pushed again, turning the power off.

e) Move toggle switch on panel to selected setting, either 90MM or 120mm. After approximately 25 seconds the corresponding pilot light will glow periodically to show that heater in unit is cycling, on for about six seconds, indicating the heater is on, and off for about 17 seconds, to allow the heater chamber to cool and draw a vacuum. Full suction occurs after about 8 to 10 cycles.

NOTE

High position is equivalent to a suction pressure of **120 millimeters** of mercury and **LOW** is equivalent to a suction pressure of **90 millimeters** of mercury.

f) Empty gallon receptacle at periodic intervals, be sure it does not fill beyond the level indicated on the label. Remove bottle cap before removing bottle to avoid allowing the fluid to be drawn into pump when the bottle is tilted. The bacteriostatic filter and/or the overflow cutoff feature will interrupt suction to the patient if the bottle is allowed to fill too far.

CAUTION

To avoid cross contamination and/or damage to the unit, fluid should never be allowed to enter the pump. If it does, the unit must be removed from service **immediately**, and the heating chamber **replaced** or **repaired.**

DO NOT RUN UNIT WITHOUT A PROPER BACTERIOSTATIC FILTER

CAUTION

Always check and validate overflow cutoff point before putting unit in service.

* Fill the collection jar with clean water to just below the **"DO NOT FILL ABOVE THIS LINE"** mark.

* Attach the cap assembly including the overflow cutoff.

* Connect the unit to a proper power source and turn the unit on. Select either 90 MM Hg or 120 mm Hg.

* Place the patient end of the collection tube into a container of clean water. To avoid siphoning, the water level of the container should be below the water level of the collection bottle.

* Verify that water is being drawn into the hose and into the collection bottle.

* Adjust the level of the overflow cutoff to stop the flow of water. Observe the water level in the collection jar. This is the set cutoff point.

* Turn the unit off and empty the collection bottle. Replace the patient tubing with a new hose.

CAUTION

If other than standard collection bottle is used, the following precautions must be used to ensure operation of the automatic cutoff.

Bottle capacity must be at least one (1) gallon (4 liters).

3.2.1 Overflow Cutoff Operation

The automatic vacuum cutoff (Item 2, Figure 2) consists of an autoclaveable, float controlled, shut-off valve.

As fluid fills the collection bottle the float rises. When the fluid level reaches the **"DO NOT FILL ABOVE THIS LINE"** level the float operated shut-off valve impedes vacuum flow.

To adjust cutoff, point push the 90^{0} tube with cutoff valve installed into bottle decreasing fluid level. Pull tube out of bottle to increase fluid level.

SECTION 4. MAINTENANCE AND SERVICE

4.1 MAINTENANCE

a) The **Model 2590-G-120** requires no lubrication.

b) To minimize the possibility of cross-infection, after each usage, the bacteriostatic filter, Stirn P/N 1008564, and the tubing, Stirn P/N 8000270, should be replaced. The collection bottle and cap should be sanitized and/or sterilized in accordance with applicable government regulations.

c) Before each patient use check connections, tubing, bottle cap and bottle for wear or defects.

d) The heating chamber requires no maintenance unless the chamber is flooded. (See Replacing Heating Element Assembly, Paragraph 4.3.2.1)

e) Having no moving parts, the working mechanism of this unit requires no maintenance. Keep the exterior of the unit clean by wiping it with a damp cloth, using a mild detergent.

4.2 SERVICE

Loss of suction may result from the following causes:

a) Cracked tubing or loose tubing connections.

b) Bottle cap not tight.

c) Obstruction in suction tube.

d) Check valve inoperative or leaking--replace. (See instructions for removing cabinet top to gain access to check valve.)

e) No power at the outlet supplying the unit. (Power switch does not glow.)

f) Electrical malfunction (See Paragraph 4.3)

4.2.1 Removal of Cabinet Top (Top Cover)

CAUTION

There are exposed electrical connections within the units housing. **THE COVER SHOULD ONLY BE REMOVED BY QUALIFIED SERVICE PERSONNEL. DISCONNECT LINE CORD PLUG FROM OUTLET BEFORE REMOVING COVER.**

Remove two screws from top front and two screws from top rear of cabinet top. Lift cabinet top from rear and pull forward and upward to remove.

Necessary Equipment - Screw Driver (Phillips)

4.3 ELECTRICAL TROUBLE-SHOOTING

Follow instructions of Paragraph 4.2.1 for removing cabinet top to gain access to electrical components.

4.3.1 Trouble-shooting

UNIT INOPERATIVE

Possible Cause	Possible Remedy
a) No power at unit. Power and switch on panel does not glow when pressed in.	Check for correct voltage and frequency at room outlet in accordance with nameplate.
b) Defective line cord or plug.	Repair or replace.
c) Power switch glows but unit does not operate:	
Defective circuit board (Item 9, Figure 2) defective heating chamber (Item 7, Figure 2)	Repair or replace circuit board. Replace heating chamber or install new heating element (Item 4, Figure 4).

Necessary Equipment - None

4.3.2 Checking Heating Chamber

a) Disconnect the two leads from the heating chamber at the circuit board. With the chamber at room temperature, connect an ohmmeter to the two leads. Resistance should be approximately 153 ohms.

b) When operating at 115 Volts the heater current is approximately 0.75 Amperes.

Necessary Equipment - Multimeter

4.3.2.1 Replacing Heating Element Assembly

a) Refer to Figure 2. Remove heating chamber assembly, P/N 3100268, Item 7, by first disconnecting tubing , P/N 8000270 Item 6, Figure 10, from chamber.

b) Disconnect the two wire leads from the heating chamber at the circuit board. Cut ty-wraps to free wires.

c) Remove 4 each, #8-32, nuts (51), #8 lockwashers (52), and #8-32 Pan Hd. screws (50) holding heating chamber to base panel. Lift heating unit from cabinet.

d) Refer to Figure 4. Remove 6 each, #8 self-tap screws (6) and #8 lockwashers (7) holding heating element assembly (4) to chamber housing (1). Withdraw heating element and discard gasket (2).

e) If fluids have entered the chamber, thoroughly clean, sanitize and/or sterilize chamber in accordance with applicable government regulations.

f) Replace Figure 10 manifold assembly, P/N 3062018.

g) Install new heating element, P/N 3101201, Item 4, Figure 4, using a new gasket, P/N 1007491, Item 2. Replace screws, Item 6, and lockwashers, Item 7, and tighten all evenly and securely making sure that gasket, Item 2, is properly compressed to seal chamber completely.

h) Reassemble heating chamber to cabinet in the reverse order of disassembly.

Necessary Equipment - Screw Driver (Phillips)
Screw Driver (Blade)
Wire Cutter Pliers
1/2" Open End Wrench

4.3.3 Electronic Circuit Board Repairs

A qualified technician can make certain repairs to the circuit board. The following circuit operating description, along with Figure 5 and 6, will provide the information to enable repairs.

CAUTION

CIRCUITRY IS NOT ISOLATED FROM POWER LINE. AN ISOLATION TRANSFORMER CAPABLE OF HANDLING 1 AMPERE SHOULD BE USED IN THE INPUT LINE TO MINIMIZE SHOCK HAZARD AND ALLOW GROUNDED TEST EQUIPMENT.

4.3.3.1 Circuit Description

a) A 12 volt DC power supply is formed by dropping resistor R4, rectifier CR3, filter capacitor C2 and regulating zener diode CR1. Note that zener diode CR1 acts as a voltage limiter when C2 is charging from the line, and that C2 voltage decreases somewhat as it discharges during the line voltage reversal.

b) Power is supplied to integrated circuit timer U1, and charges timing capacitor C3 through resistor R2 and diode CR2. When timer threshold (2/3 Vcc 8 Volts) is reached, timer discharges C3 through R3. Discharge continues until lower threshold (1/3 Vcc 4 Volts) is reached, when the discharge is stopped; C3 recharges through R2 and CR2 again.

c) While C3 is charging, the timer (U1) output at terminal 3 is at the positive supply voltage so triac Q1 remains off. While C3 discharges, the timer output is at the negative supply voltage, and triac Q1 is turned on through gate current limiting resistor R1. Power flows through Q1 to the heater directly when the toggle switch is in the "HIGH" position, and through dropping resistor R5 when the switch is in the "LOW" position.

d) Proper timing is approximately 6-7 seconds ON and 13-15 seconds OFF.

Necessary Equipment - Multimeter
Stop Watch

4.4 PERFORMANCE EVALUATION

After repairs are accomplished the following tests should be performed. These tests should also be performed on working units periodically (one to every 10 patient uses) to assure standard operation. All tests are conducted at standard sea level pressure of 29.92 IN/Hg. and standard room temperature of 70°F. Proper allowances should be made for deviations from standard sea level pressure and standard temperature.

4.4.1 Low Vacuum

a) Set line voltage at 115 (or 230) volts nominal

b) Connect Stirn test set P/N 3062013 to the collection bottle (PATIENT) fitting.

c) Verify suction side (bottle to filter and filter to cabinet) connection.

d) Set the vacuum switch to 90mm position and operate unit for a minimum of 15 minutes. The vacuum reading shall be between 85 and 95 millimeters Hg, plus the tolerance of the test gauge. Record value.

4.4.2 High Vacuum

a) Line voltage must be 115 (or 230) volts nominal.

b) Release vacuum from low vacuum test.

c) Set the vacuum switch to 120mm position and operate unit for minimum of 15 minutes. The vacuum reading shall be between 114 to 126 millimeters Hg plus the tolerance of the test gauge. Record value.

4.4.3 Comparison of Readings

If the low vacuum reading is higher than the high vacuum reading or if the readings are identical, the unit should be rejected.

General Performance Specifications:

	AT 90 mm Hg SETTING		AT 120 mmHg SETTING		AMPS (MAX)	
	MIN	MAX	MIN	MAX	115 VAC	230 VAC
VACUUM IN mm OF MERCURY	85	95	114	126	1	0.5
FREE AIR FLOW IN LITERS/MIN.	0.25		0.35			

NOTE: The tolerance of the test gauge must be added to these values

Necessary Equipment: Stirn Test Set P/N 3062013
Stop Watch

SECTION 5. STORAGE

5.1 STORAGE CONDITIONS

The apparatus containers must be protected against becoming wetted by rain, fog, condensing high humidity, flooding or other causes. The container must not be stacked more than two containers high. Nonstacked containers may be loaded with other loads up to a maximum of 50 pounds per container.

Storage temperatures should be restricted to -40°F to +130°F.

No special storage facilities, inspections while in storage, or preservation procedures are considered necessary, when stored within the conditions specified above.

SECTION 6. OPERATING LIMITATIONS

6.1 TEMPERATURE

Ambient storage and operation of the Stirn 2590 Series Aspirators should be maintained between 32°F and 110°F. However, the manufacturer suggests that extended period of operation should be at normal room temperature conditions (65°F to 85°F).

6.2 PRESSURE ALTITUDE

Pressure and altitude does not have an effect upon the performance of an aspirator. The 2590 Series has been designed to function in altitudes suitable for human habitation.

6.3 PREVENTIVE MAINTENANCE

The Stirn 2590 Series Aspirators are designed to give the user years of trouble free, dependable service. The life of the unit, however, is determined by total cycles run which are usually different in every application. STIRN INDUSTRIES recommends that this unit be inspected and maintained on an annual basis by an authorized, trained medical/electrical technician in order to ensure proper operation as well as safety and efficacy.

6.4 LONG-TERM STORAGE OR NON-USE

After six months of storage or non-use Stirn recommends an authorized trained medical/electrical technician subject each unit to a preventive maintenance check.

6.5 REPAIR PARTS

The use of other than STIRN spare parts on this unit will void all warranties and may not allow the unit to perform as designed. The User/Owner assumes all liability for the operation of this unit with other than factory authorized parts.

Warranty

The warranty for this unit applies to the original purchaser and end user. It may not be sold or transferred to any other purchasers or users.

STIRN INDUSTRIES

AT 09

	Item Number		Description	Quantity	Item number
3062015-	- MODEL 2590-120G	47		0.0	
	3000754-	-	STAND, ASSY	1.0	01
	3062056-	-	OVERFLOW CUTOFF VALVE ASS'Y.	1.0	02
	2028140-	-	LEG FOR BOTTLE HOLDER	3.0	03
	3062076-	-	CAP ASS'Y.,128 OZ.	1.0	04
	3000757-	-	PANEL ASS'Y.MODEL 2590	1.0	05
	3021960-	-	CLIP ASSY	1.0	06
	3100268-	-	HEATING CHAMBER ASS'Y.	1.0	07
	1062026-	-	UNION BULKHEAD, 1/4 ID TUBE	1.0	08
	1062028-	-	TEE PLAST. BRANCH 1/4IDx1/8NPT	1.0	08
	1062025-	-	VALVE CHECK PLASTIC MINIATURE	2.0	08
	8000270-	-	TUBING PLASTIC, 1/4 ID	18.0	08
	3062018-	-XXX	MANIFOLD ASSY	1.0	08
	3062080-	-	CIRCUIT BOARD ASSEMBLY	1.0	09
	2004090-	-	TOP CABINET,MOBILE ASPIRATOR	1.0	10
	1008564-	-	GELMAN FILTER,BACTERIOSTATIC	4.0	11
	8000270-	-	TUBING PLASTIC, 1/4 ID	3.0	12
	1007532-3	-	PAD, SPONGE,6-3/16Dia.	1.0	14
	1062271-	-	NAMEPLATE,2590-120G,NON-UL	1.0	15
	1001381-	-	CASTER SOCKET	4.0	16
	1023280-	-	CASTER 3"Dia.W/BRAKE	2.0	17
	1023270-	-	3"DIA.CASTER W/O BRAKE	2.0	18
	1007679-	-	BOTTLE,COLLECTION,128 OZ.	1.0	20
	1001444-	-	STAND OFF,HEX ALUM/RND PLASTIC	4.0	21
	1001339-	-	LINE CORD,120",16-3AWG,SJT	1.0	25
	1030410-	-	CABLE, TIE SMALL	1.0	26
	1000661-	-	TAGS HOSPITAL GRADE	1.0	27
	1002906-	-	BUSHING, STRAIN RELIEF	1.0	28
	1062278-	-	DECAL-WIRING DIAG,2590-120G	1.0	31
	1030680-	-	TERMINAL RING,#8,16-22 AWG	1.0	32
	1030310-	-	TERMINAL, .25" QUICK CONNECT	2.0	33
	1062024-	-	TRANSFORMER,STEP-DOWN 150 VA	1.0	34
	2011992-	-	TUBING,PLASTIC,1/4I.D. x 12"Lg	1.0	35
	1002490-	-	SCREW,PAN HD.No.10-32 x3/8Lg.	4.0	39
	1022770-	-	RIVET,POP .125 "Dia.x.187Lg.	2.0	40
	1023320-	-	RIVET,POP 3/16 Dia.CAD PL.	3.0	41
	1000558-	-	WASHER,FLAT,33/64 ID x 7/8 OD.	2.0	42
	1000040-	-	NUT, HEX #10-32	4.0	46
	1011790-	-	WASHER, LOCK #10 INT. TOOTH	4.0	47
	1028540-	-	SCREW,#8x3/8Lg.TYP.A,SHT.METAL	9.0	49
	1024780-	-	SCR, #8-32 x 3/8 LG	7.0	50
	1002330-	-	HEX.NUT#8-32CAD.PL.	7.0	51
	1002180-	-	WASHER, LOCK, #8	7.0	52
	1002280-	-	SCREW,PAN HD. No.6-32 x3/8Lg.	8.0	54
	4062016-	-	SCHEMATIC 110/120 VAC	1.0	55
	1001030-	-	WASHER, SPLIT LOCK #6	8.0	56
	4062015-	-	SCHEMATIC 220/240 VAC	1.0	57
	4062007-	-	OPERATION MANUAL 2590-120G	1.0	59

APPENDIX

DEPMED LISTS
AT-09

SEE LIST LABELED AT-09

REPAIR PARTS SUPPORT KITS

AT-01 (A)

PART NO.	DESCRIPTION	REQUIRED
3100268	Heating Chamber Assembly	1
3062076	Bottle Cap Assembly	1
1007679	Collection Bottle 128 oz.	1
1022980	Toggle Switch	1
1022850	Push Button Switch-Lighted	1
1062025	Check Valve	3

AT-01 (B)

3062080	Printed Circuit Board Assembly	1

SUPPORT TEST EQUIPMENT

AT-04

3062013	Test Set 0-200 MM/HG	1

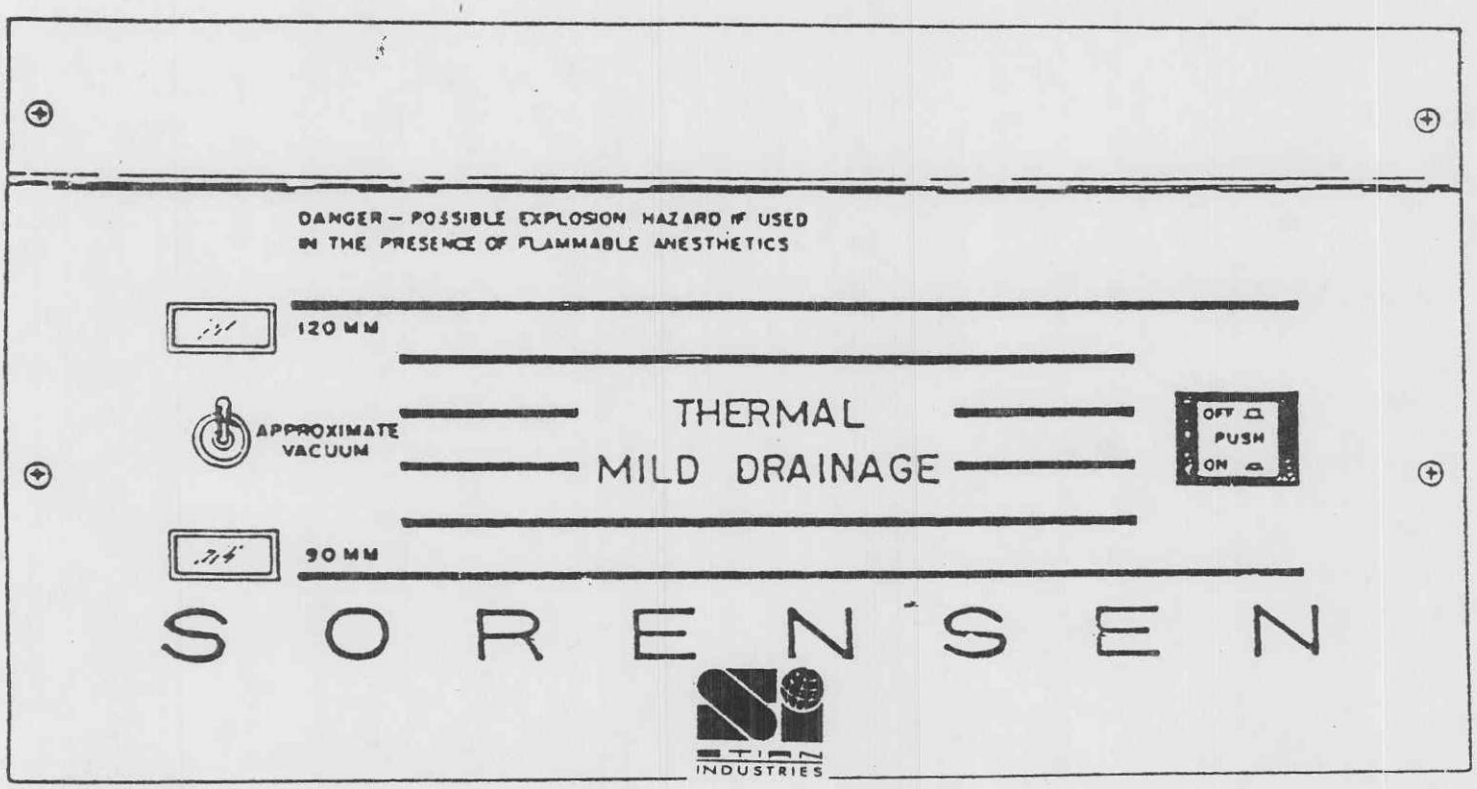
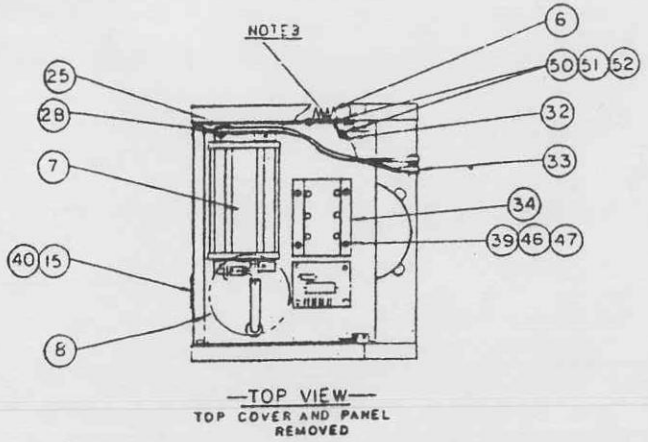
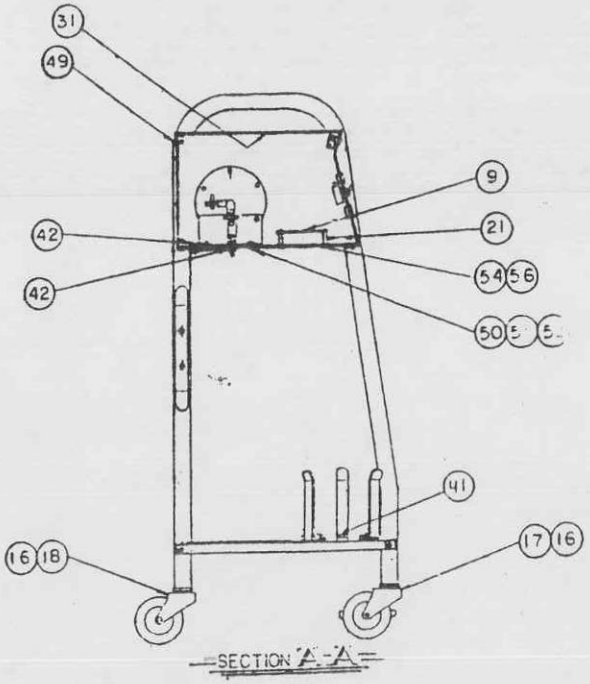


FIGURE 1

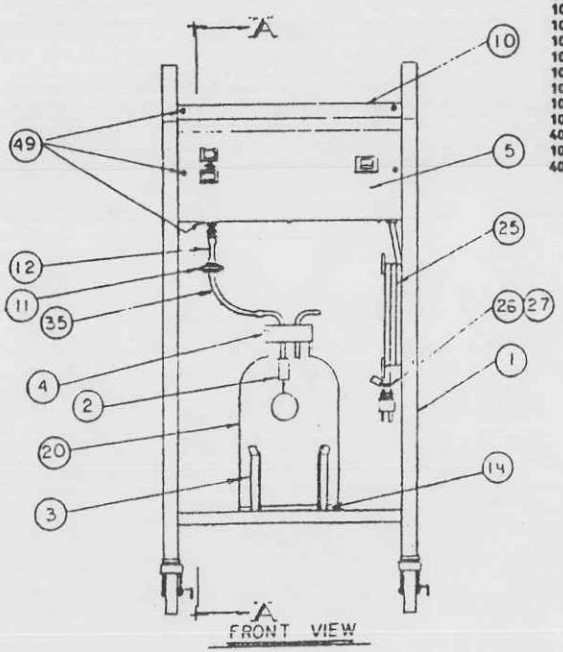
FRONT PANEL SHOWING OPERATING CONTROLS



—TOP VIEW—
TOP COVER AND PANEL REMOVED



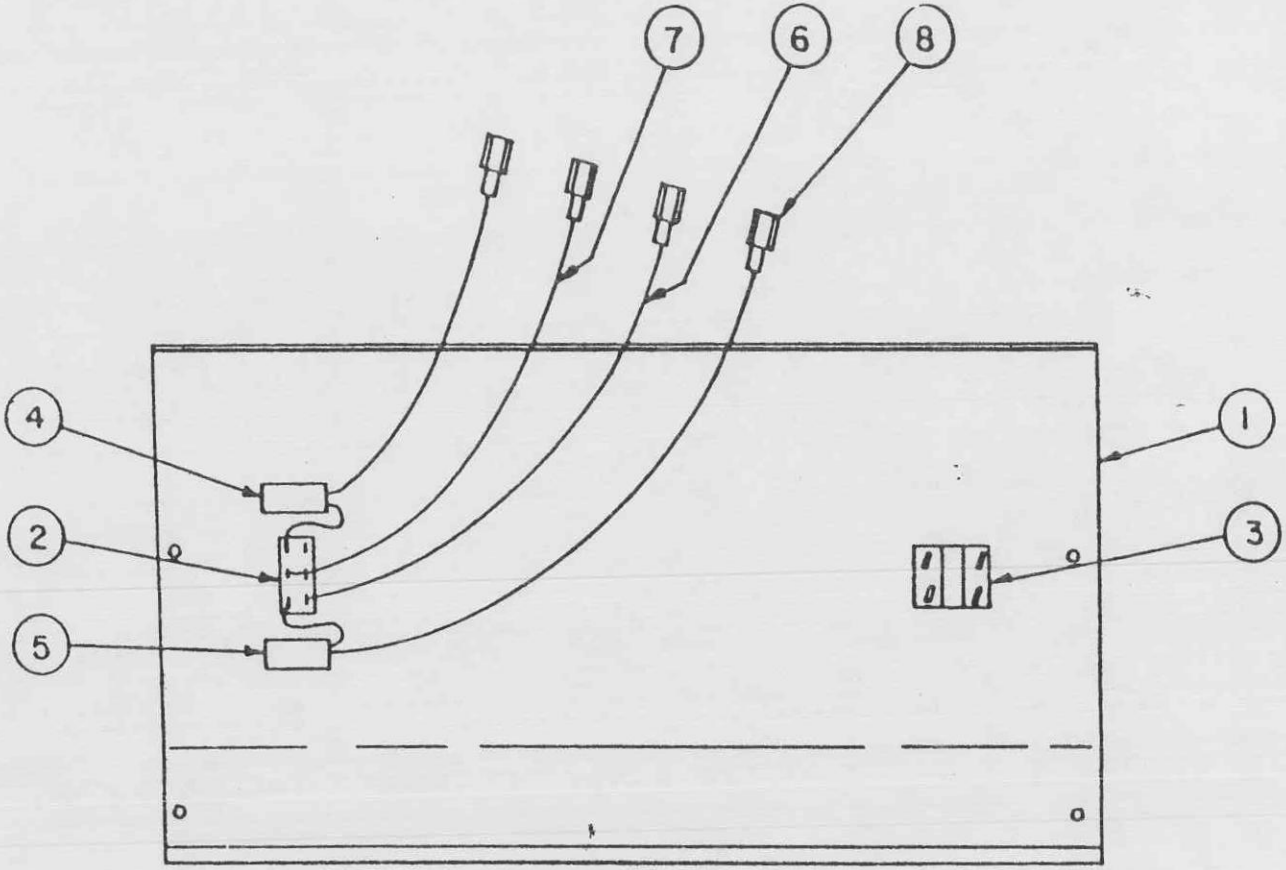
SECTION A-A



FRONT VIEW

3062015-	Item Number		Description	Quantity	Ref
	MODEL 2590-120G		46	0.0	.0
	3000754-	-	STAND, ASSY	1.0	01
	3062056-	-	OVERFLOW CUTOFF VALVE ASS'Y.	1.0	02
	2028140-	-	LEG FOR BOTTLE HOLDER	3.0	03
	3062076-	-	CAP ASS'Y.,128 OZ.	1.0	04
	3000757-	-	PANEL ASS'Y.MODEL 2590	1.0	05
	3021960-	-	CLIP ASSY	1.0	06
	3100268-	-	HEATING CHAMBER ASS'Y.	1.0	07
	1062026-	-	UNION BULKHEAD, 1/4 ID TUBE	1.0	08
	1062028-	-	TEE PLAST. BRANCH 1/41Dx1/8MPT	1.0	08
	1062025-	-	VALVE CHECK PLASTIC MINIATURE	2.0	08
	8000270-	-	TUBING PLASTIC, 1/4 ID	18.0	08
	3062018-	-XXX	MANIFOLD ASSY	1.0	08
	3062080-	-	CIRCUIT BOARD ASSEMBLY	1.0	09
	2004090-	-	TOP CABINET,MOBILE ASPIRATOR	1.0	10
	1008564-	-	GELMAN FILTER,BACTERIOSTATIC	4.0	11
	8000270-	-	TUBING PLASTIC, 1/4 ID	3.0	12
	1007532-3	-	PAD, SPONGE,6-3/16Dia.	1.0	14
	1062271-	-	NAMEPLATE,2590-120G,NON-UL	1.0	15
	1001381-	-	CASTER SOCKET	4.0	16
	1023280-	-	CASTER 3"Dia.W/BRAKE	2.0	17
	1023270-	-	3"DIA.CASTER W/O BRAKE	2.0	18
	1007679-	-	BOTTLE,COLLECTION,128 OZ.	1.0	20
	1001444-	-	STAND OFF,HEX ALUM/RND PLASTIC	4.0	21
	1001339-	-	LINE CORD,120",16-3AWG,SJT	1.0	25
	1030410-	-	CABLE, TIE SMALL	1.0	26
	1000661-	-	TAGS HOSPITAL GRADE	1.0	27
	1002906-	-	BUSHING, STRAIN RELIEF	1.0	28
	1062278-	-	DECAL-WIRING DIAG,2590-120G	1.0	31
	1030680-	-	TERMINAL RING,#8,16-22 AWG	1.0	32
	1030310-	-	TERMINAL, .25" QUICK CONNECT	2.0	33
	1062024-	-	TRANSFORMER,STEP-DOWN 150 VA	1.0	34
	2011992-	-	TUBING,PLASTIC,1/41.D. x 12"Lg	1.0	35
	1002490-	-	SCREW,PAN HD.No.10-32 x3/8Lg.	4.0	39
	1022770-	-	RIVET,POP .125 "Dia.x.187Lg.	2.0	40
	1023320-	-	RIVET,POP 3/16 Dia.CAD PL.	3.0	41
	1000558-	-	WASHER,FLAT,33/64 ID x 7/8 OD.	2.0	42
	1000040-	-	NUT, HEX #10-32	4.0	46
	1011790-	-	WASHER, LOCK #10 INT. TOOTH	4.0	47
	1028540-	-	SCREW,#8x3/8Lg.TYP.A,SMT.METAL	9.0	49
	1024780-	-	SCR, #8-32 x 3/8 LG	7.0	50
	1002330-	-	HEX.NUT#8-32CAD.PL.	7.0	51
	1002180-	-	WASHER, LOCK, #8	7.0	52
	1002280-	-	SCREW,PAN HD. No.6-32 x3/8Lg.	8.0	54
	4062016-	-	SCHEMATIC 110/120 VAC	1.0	55
	1001030-	-	WASHER, SPLIT LOCK #6	8.0	56
	4062015-	-	SCHEMATIC 220/240 VAC	1.0	57

FIGURE 2
FINAL ASSEMBLY
MODEL 2590-120G
REF D30G2015



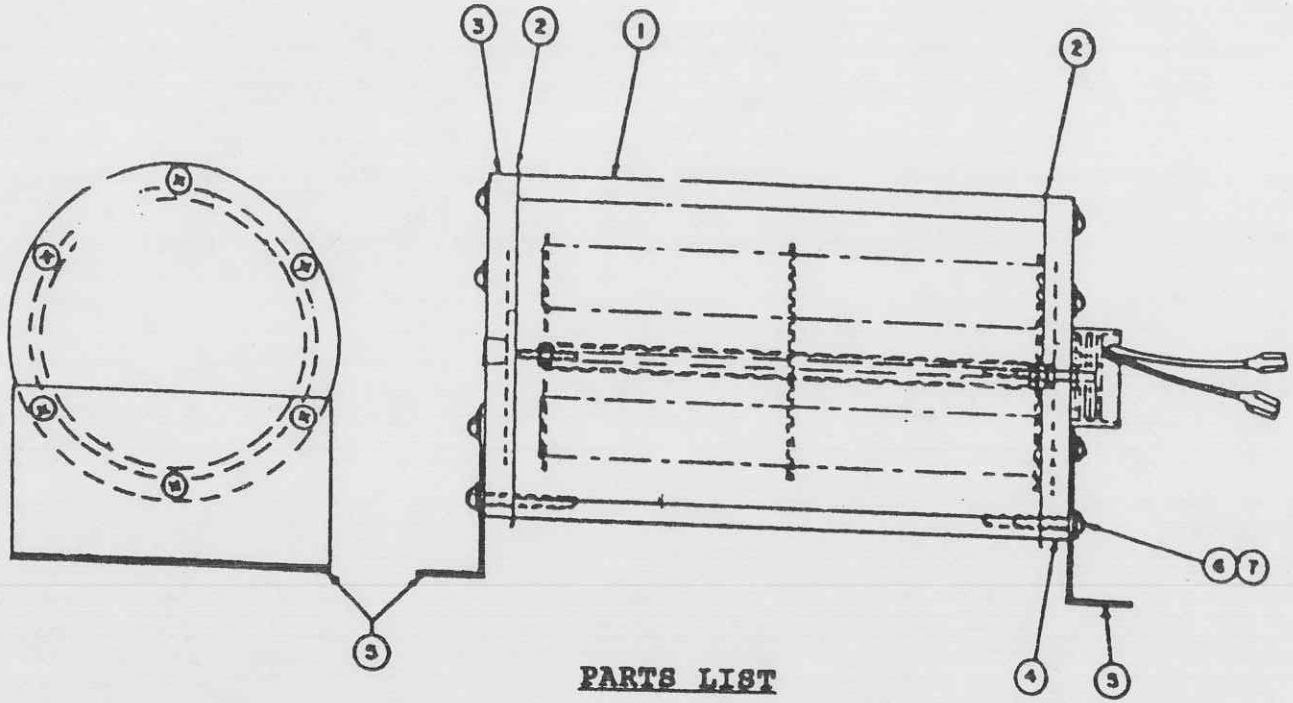
PARTS LIST

ITEM	PART NO.	QTY.	DESCRIPTION
1	2044330	1	Panel Front
2	1022980	1	Switch, Toggle D.P.D.T.
3	1022850	1	Switch, Light, Pushbutton
4	1000563	1	Light, Neon, "LOW"
5	1000564	1	Light, Neon, "HIGH"
6	1080921-00	1	Wire, UL 1015, #18GA., Black, 9" Lg.
7	1080921-22	1	Wire, UL 1015, #18GA., Red, 9" Lg.
8	1030310	4	Terminal, Quick Connect

B3000757

FIGURE 3

PANEL ASSEMBLY

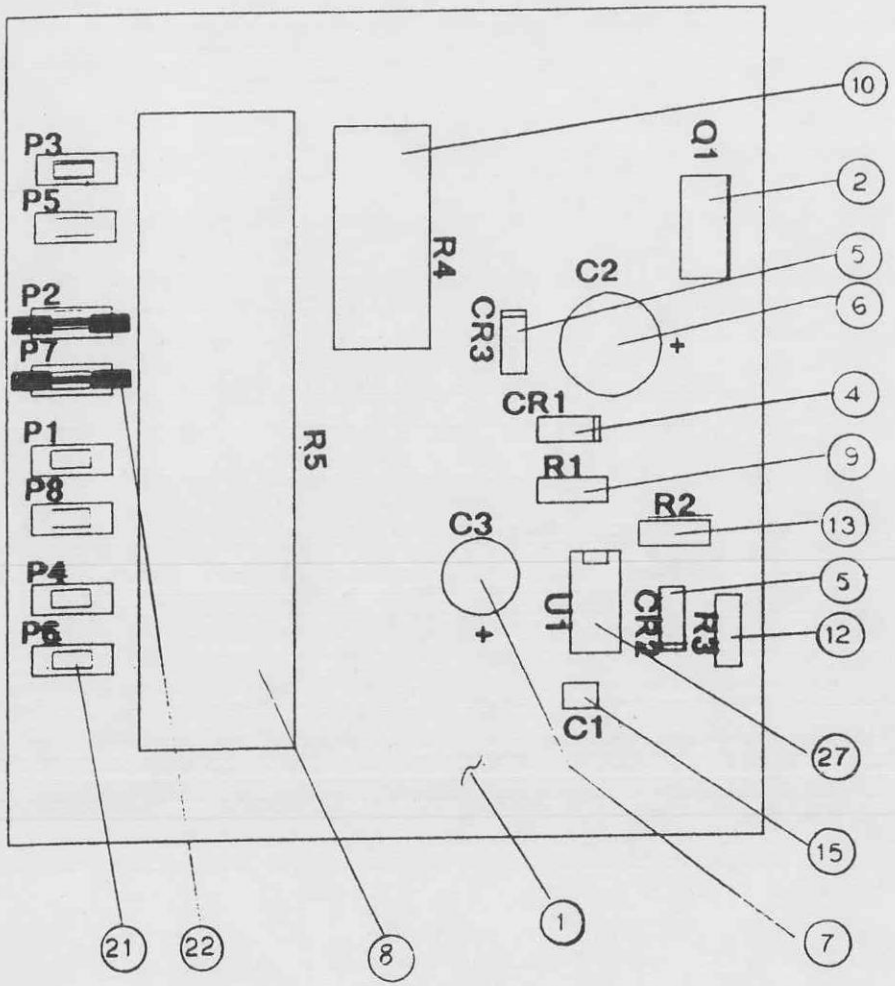


PARTS LIST

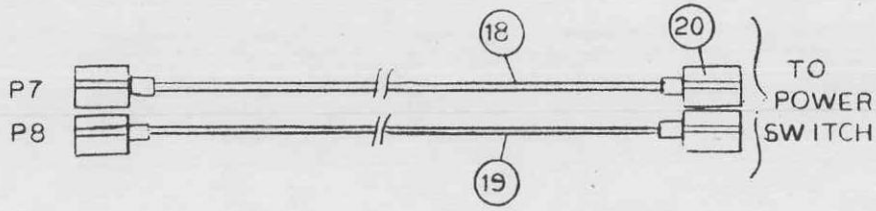
ITEM	PART NO.	QTY.	DESCRIPTION
1	2028170	1	Chamber, heating extrusion
2	1007491	2	Gasket, silicone rubber
3	2028200	1	End plate, valve end
4	3101201	1	Assembly, heating element
5	2040590	2	Bracket
6	1000664	12	Screw tapping #8 x 3/4"
7	1002180	12	Lockwasher, #8

REF. C3100268-

FIGURE 4



Item number		Description	Quantity	Item Number
3062080-	-	CIRCUIT BOARD ASSEMBLY 24	0.0	
	3062080-06	-XXX PCB-SCHEMATIC,2590-120G	0.0	
	3062080-05	-XXX PCB-SOLDER MASK, 2590-120G	0.0	
	3062080-04	-XXX PCB-ART. SOLD.,2590-120G	0.0	
	3062080-03	-XXX PCB-ART. COMP., 2590-120G	0.0	
	3062080-02	-XXX PCB-SILKSCREEN,2590-120G	0.0	
	3062080-01	-XXX PCB-DRILL GUIDE,2590-120G	0.0	
	3062080-00	-XXX PCB-ASSY DRAWING, 2590-12G	1.0	01
	1001427-	-XXX GATE SENSITIVE TRIAC, 6A 400	1.0	02
	1001425-	-XXX DIODE ZENER, 12V, 1W, 1N4742	1.0	04
	1001424-	-XXX DIODE 1A-400-PIV-IN-4004	2.0	05
	1001423-	-XXX CAPACITOR 220-250 UF 16V	1.0	06
	1001422-	-XXX CAPACITOR, 33 UF 10% 10V	1.0	07
	1003952-	-XXX RESISTOR, 35 OHMS 25 W	1.0	08
	1015590-	-XXX RESISTOR 1.5K, 10%, 1/2W	1.0	09
	1002910-	-XXX RESISTOR, 2.2K, 5W	1.0	10
	1001413-	-XXX RESISTOR, 270K, 5%, 1/2W	1.0	12
	1002394-	-XXX RESISTOR, 680K, 5%, 1/2W	1.0	13
	1062279-	-XXX CAPACITOR, .01 UF, 50V	1.0	15
	1080921-9	- WIRE, UL 1015, 18 GA, WHITE	15.0	18
	1080921-0	- WIRE, UL 1015, 18 GA, BLACK	15.0	19
	1030310-	-XXX TERMINAL .25" SPADE. #18 WIRE	4.0	20
	1062280-	-XXX QUICK CONNECT,MALE TAB,.250	8.0	21
	1062281-	-XXX QUICK CONNECT,M/F,.250	2.0	22
	1001419-	-XXX TIMER, I.C. 555	1.0	27



18

NOTE

1 UL1007, 20 GA MAY BE SUBSTITUTED FOR ITEMS 18 AND 19

FIGURE 5

REF. B3602080

CIRCUIT BOARD ASSEMBLY

REV.	BY	ECN	APP.	DATE

TOLERANCES, UNLESS OTHERWISE INDICATED
.XX = +/-.010 FRACTIONS +/- 1/64
.XXX = +/-.005 ANGLES +/- 1/2 DEG

MATERIAL:

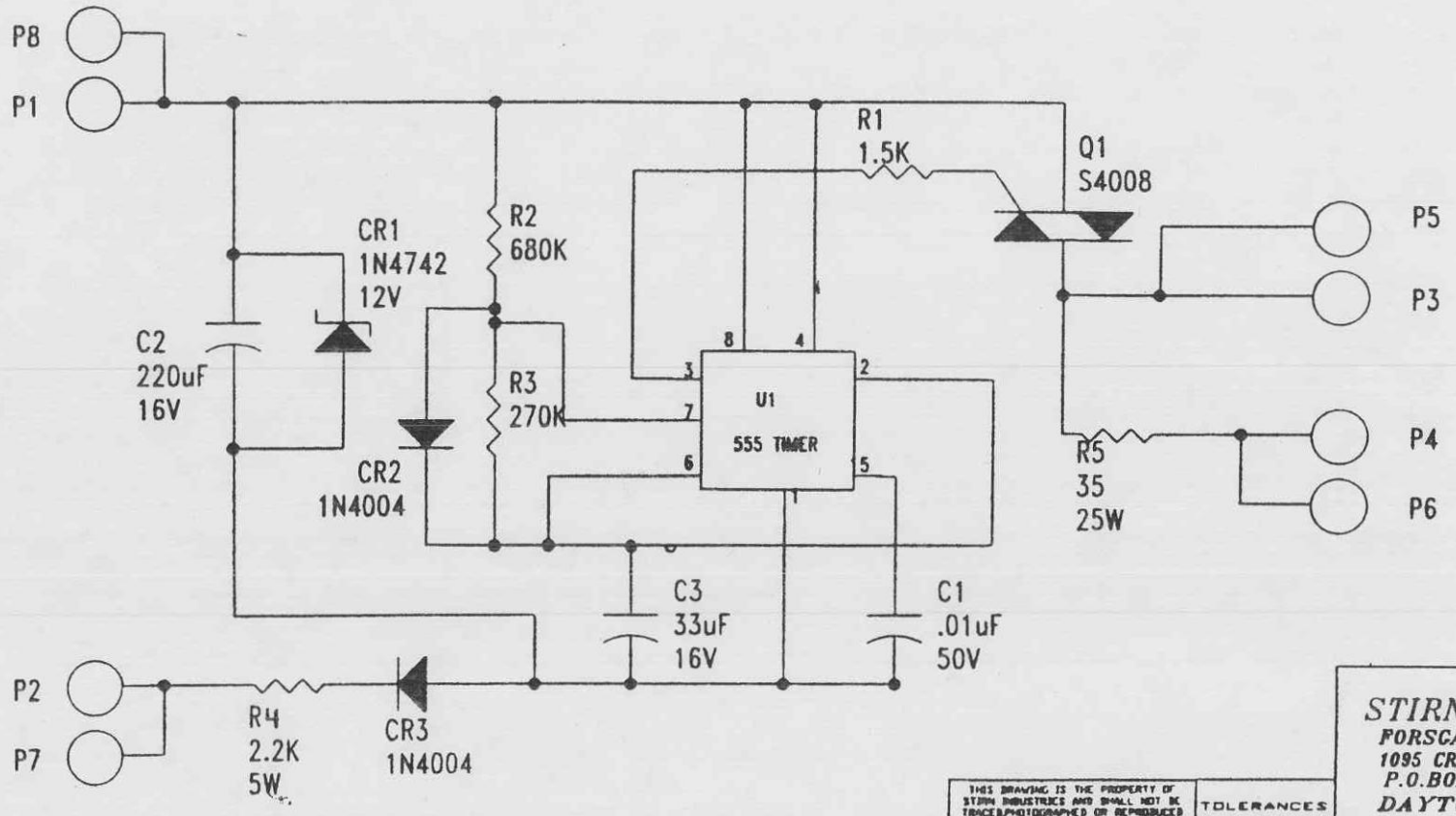
DRWN. BY:	CKD. BY:	APPD. BY:
ET6		
DATE: 26-JUN92	DATE:	DATE:

STIRN INDUSTRIES
1095 CRANBURY RD.
DAYTON, NJ 08810

ASSY-CIRCUIT BOARD
2590-120G

B 3062080

SCALE: 1/1 SHEET 1 OF 1



TOLERANCES UNLESS SPECIFIED OTHERWISE

DO NOT SCALE DRAWING

DIMENSIONS ARE IN INCHES

.XX=

.XXX=

FRACTION=1/64±

ANGLES=1/2°

FINISH

MATERIAL

STIRN INDUSTRIES
FORSCATE TECH. CENTER
1095 CRANBURY SO. RIVER RD.
P.O.BOX 407
DAYTON, N.J. 08810

DATE 16JUNE92 DRAWN BY ETG

CHECKED BY

SCALE

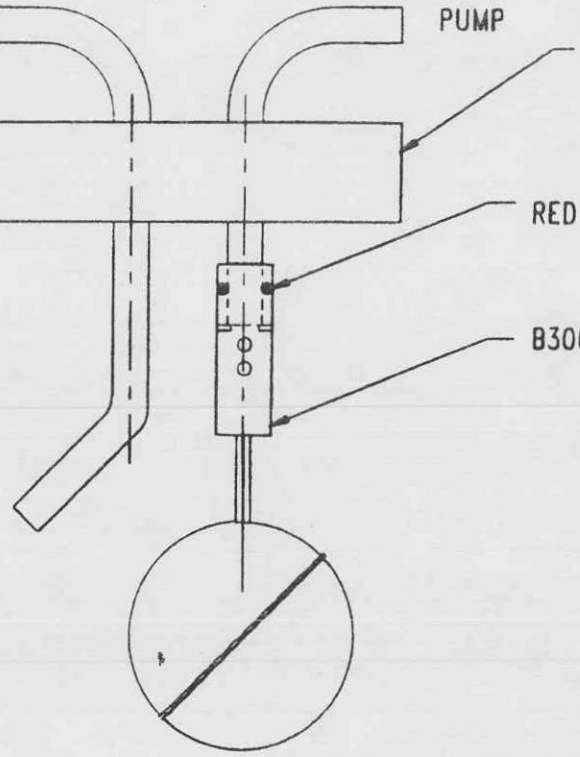
SHEET OF

DESCRIPTION SCHEMATIC-PCB 2590-120G

DRAWING NUMBER B3062080-06

REVISION

REV	ECN	DATE	BY
A	20-280	27JULY92	ETG



NOTES:

1. TO INSTALL THE OVERFLOW CUTOFF ASSEMBLY, PUSH THE ASSEMBLY ON TO THE TUBE LABELLED "PUMP" UNTIL IT STOPS.
2. ADJUST THE SHUTOFF LEVEL BY RAISING OR LOWERING THE TUBE WITH THE OVERFLOW CUTOFF ASSEMBLY ATTACHED.
3. REPLACE THE SILICON RUBBER O-RINGS IF THE ASSEMBLY FAILS TO STOP THE FLOW AT AN APPROPRIATE LEVEL.
4. THOROUGHLY CLEAN THE OVERFLOW CUTOFF ASSEMBLY BEFORE STERILIZING.

TOLERANCES UNLESS SPECIFIED OTHERWISE

DO NOT SCALE DRAWING

DIMENSIONS ARE IN INCHES

MATERIAL

.XX=
.XXX=
FRACTION=1/64
ANGLES=1/2°

FINISH

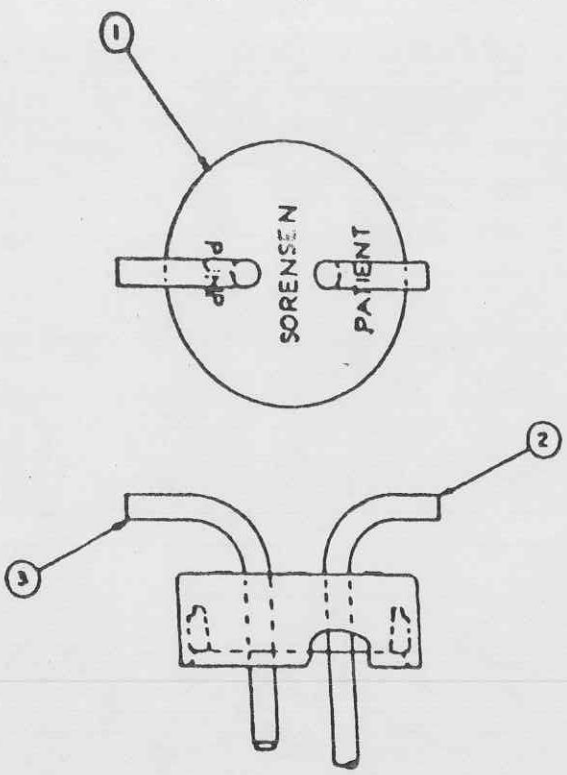
STIRN INDUSTRIES
FORSGATE TECH. CENTER
1095 CRANBURY SO. RIVER RD.
P.O.BOX 407
DAYTON,N.J. 08810

DATE ISSUED	DRAWN BY FWS	DATE 7/25/92
ENGRG. APPROVALS	CHECKED BY	DATE
APVL	SCALE NONE	SHEET OF

DESCRIPTION: OVERFLOW CUTOFF ASSEMBLY

DRAWING NUMBER: B3062056 REVISION: A

FIGURE 8



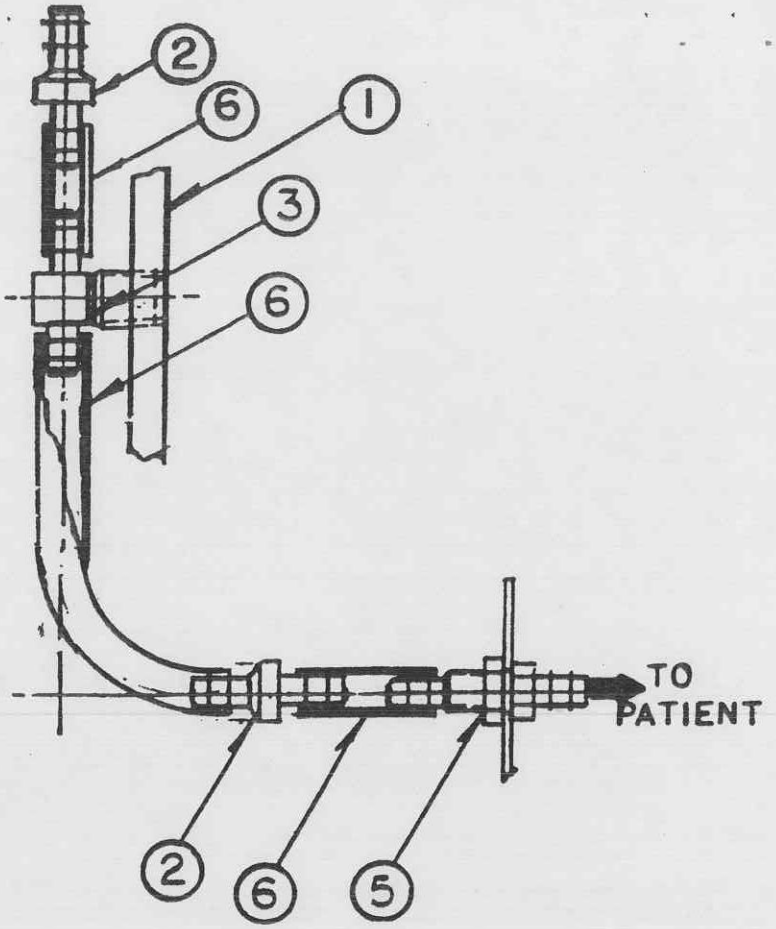
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	1007215	1	CAP
2	2062071	1	TUBE, LONG
3	2044050	1	TUBE, SHORT

REFERENCE B3062076

FIGURE 9

COLLECTION BOTTLE CAP ASSEMBLY



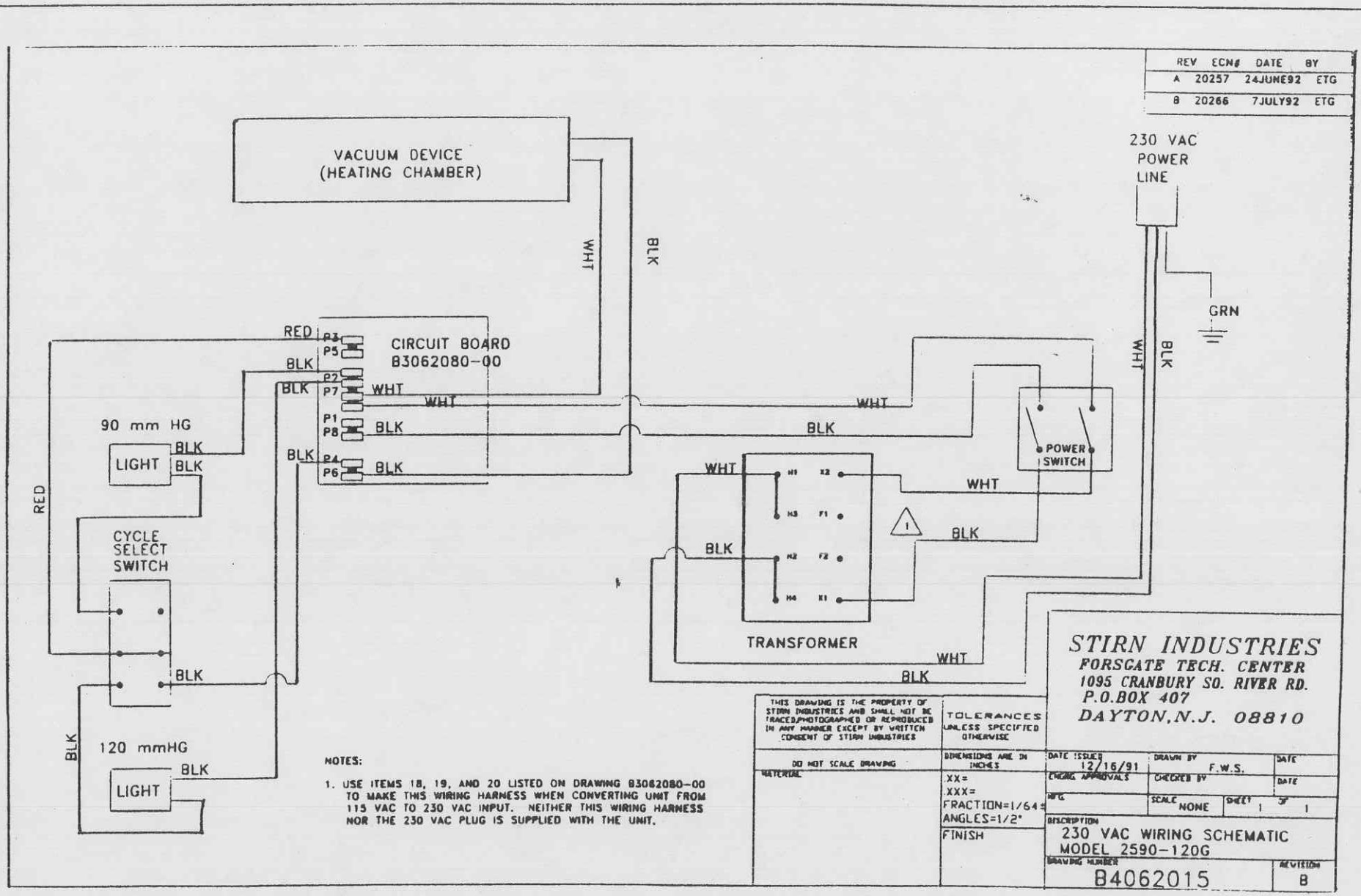
PARTS LIST

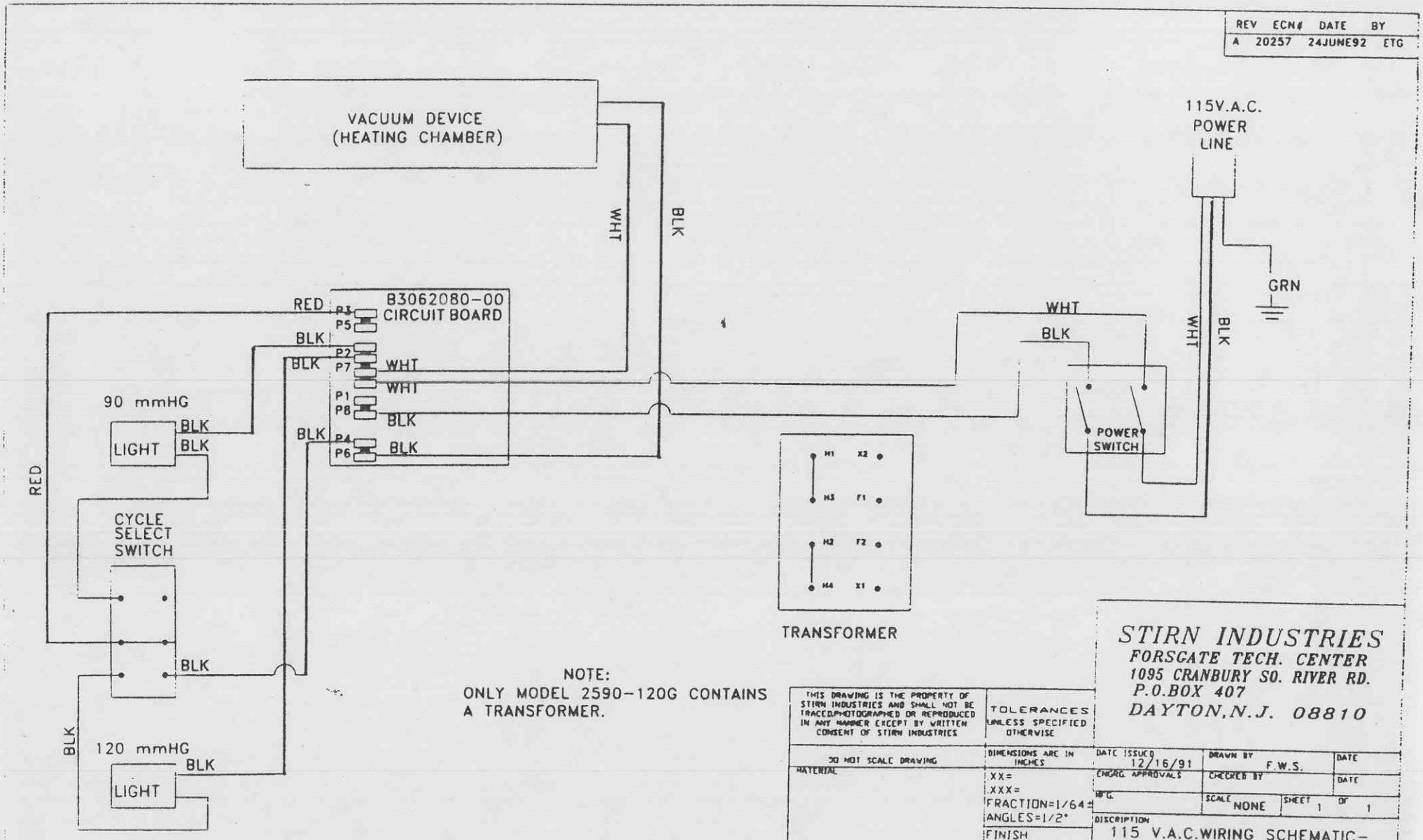
ITEM	PART NO.	QTY	DESCRIPTION
1	2028200	REF	END PLATE, VALVE END
2	1062025	2	CHECK VALVE, MINATURE
3	1062028	1	TEE, MALE RUN, 1/8NPTx1/4ODT
5	1062026	1	UNION, BULKHEAD
6	8000270	A/R	TUBING 1/4 ID

REFERENCE 3062018

FIGURE 10

MANIFOLD ASSEMBLY


REV ECN# DATE BY
A 20257 24JUNE92 ETG
B 20266 7JULY92 ETG
VACUUM DEVICE
(HEATING CHAMBER)
230 VAC
POWER
LINE
GRN
WHT
BLK
RED
CIRCUIT BOARD
B3062080-00
P3
P5
P2
P7
P1
P8
P4
P6
90 mm HG
LIGHT
CYCLE
SELECT
SWITCH
120 mmHG
LIGHT
POWER
SWITCH
TRANSFORMER
H1
X2
H3
F1
H2
F2
H4
X1
STIRN INDUSTRIES
FORSCATE TECH. CENTER
1095 CRANBURY SO. RIVER RD.
P.O.BOX 407
DAYTON, N.J. 08810
NOTES:
1. USE ITEMS 18, 19, AND 20 LISTED ON DRAWING B3062080-00 TO MAKE THIS WIRING HARNESS WHEN CONVERTING UNIT FROM 115 VAC TO 230 VAC INPUT. NEITHER THIS WIRING HARNESS NOR THE 230 VAC PLUG IS SUPPLIED WITH THE UNIT.
THIS DRAWING IS THE PROPERTY OF STIRN INDUSTRIES AND SHALL NOT BE TRACED, PHOTOGRAPHED OR REPRODUCED IN ANY MANNER EXCEPT BY WRITTEN CONSENT OF STIRN INDUSTRIES
DO NOT SCALE DRAWING
MATERIAL
TOLERANCES UNLESS SPECIFIED OTHERWISE
DIMENSIONS ARE IN INCHES
XX=
.XXX=
FRACTION=1/64±
ANGLES=1/2°
FINISH
DATE ISSUED 12/16/91
DRAWN BY F.W.S.
DATE
ENGRG APPROVALS
CHECKED BY
DATE
MFG.
SCALE NONE
SHEET 1 OF 1
DESCRIPTION
230 VAC WIRING SCHEMATIC
MODEL 2590-120G
DRAWING NUMBER
B4062015
REVISION
B


REV ECN# DATE BY
A 20257 24JUNE92 ETG
VACUUM DEVICE
(HEATING CHAMBER)
115V.A.C.
POWER
LINE
GRN
WHT
BLK
RED
B3062080-00
CIRCUIT BOARD
P3
P5
P2
P7
P1
P8
P4
P6
90 mmHG
LIGHT
CYCLE
SELECT
SWITCH
120 mmHG
LIGHT
POWER
SWITCH
H1
X2
H3
F1
H2
F2
H4
X1
TRANSFORMER
NOTE:
ONLY MODEL 2590-120G CONTAINS
A TRANSFORMER.
THIS DRAWING IS THE PROPERTY OF STIRN INDUSTRIES AND SHALL NOT BE TRACED,PHOTOGRAPHED OR REPRODUCED IN ANY MANNER EXCEPT BY WRITTEN CONSENT OF STIRN INDUSTRIES
TOLERANCES UNLESS SPECIFIED OTHERWISE
DO NOT SCALE DRAWING
DIMENSIONS ARE IN INCHES
MATERIAL
XX=
XXX=
FRACTION=1/64±
ANGLES=1/2°
FINISH
STIRN INDUSTRIES
FORSGATE TECH. CENTER
1095 CRANBURY SO. RIVER RD.
P.O.BOX 407
DAYTON,N.J. 08810
DATE ISSUED 12/16/91
DRAWN BY F.W.S.
DATE
ENGRG. APPROVALS
CHECKED BY
DATE
MFG.
SCALE NONE
SHEET 1 OF 1
DISCRIPTION
115 V.A.C.WIRING SCHEMATIC-
MODEL 2590-120G &2590-120
DRAWING NUMBER
B4062016
REVISION
A